Organisé conjointement par
CPHT-École Polytechnique et Groupe Théorie IPN Orsay

SÉMINAIRE de PHYSIQUE des PARTICULES

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Heavy to Light Meson Semileptonic Decays Form Factors

Résumé :
Like the two-photon and two-gluon decays of the P-wave $\chi_{c0,2}$ and $\chi_{b0,2}$ state for which the Born term produces a very simple decays amplitude in terms of an effective Lagrangian with two-quark local operator, the Born term for the processes $c\bar{d} \to (\pi, K)\ell\nu$ and $b\bar{d} \to (\pi, K)\ell\nu$, could also produce the D and B meson semileptonic decays with the light meson π, K in the final state. In this approach to heavy-light meson form factors with the π, K meson treated as Goldstone boson, a simple expression is found for the decays form factors, given as : $f_+(0)/(1-q^2/(m_H^2 + m_\pi^2))$, with $H = D, B$ for $D, B \to \pi$ form factors, and $f_+(0)/(1 - q^2/(m_H^2 + m_K^2))$ for $B, D \to K$ form factor. In this talk, I would like to present a recent work showing that this expression for the form factors could describe rather well the q^2-behaviour observed in the BaBar, Belle and BESSIII measurements and lattice simulation. In particular, the $D \to K$ form factors are in good agreement with the measured values in the whole range of q^2 showing evidence for $SU(3)$ breaking with the presence of m_K^2 term in the quark propagator, but some corrections to the Born term are needed at large q^2 for $D, B \to \pi$ form factors.

Jeudi 8 Novembre 2018

11:00

Salle de Conferences Louis Michel, bat. 6, CPHT, Ecole polytechnique